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The implications of late springs

L P SMITH

What do we mean by the first day of spring? From the point of view of a dairy farmer it could be taken as the day when the grass begins to grow. Unfortunately there are no past records of this date, so help has to be sought from records of air and soil temperatures. Experience has shown that a fair approximation to the date can be obtained in this way, and it is then possible to find out how the start of spring varies from place to place and from year to year.

Most farmers feel that they know the average date for their own area and plan accordingly. The estimates are based on their previous experience, or on the experience of their fathers or mentors. This means that there is about a 20 year time lag in assessment, which normally is no disadvantage, but nowadays may be a serious source of error.

Climate is always changing, and the changes during the last 20-30 years have been very significant as far as agriculture in Britain is concerned. Between the wars was a period when all seasons of the year showed signs of getting slowly warmer. The mean winter upward trend ceased about 1940; the summer temperatures followed suit some 10-20 years later, and spring now shows signs of behaving in a similar fashion. Autumn alone has so far maintained its tendency to milder conditions. Coming back to the start of spring, with colder winters becoming more frequent and cooler springs following it, the records show that the period of earliest spring was about 1935-1954.

Using Oxford temperature records as a guide, the decade with the earliest average was 1943-1952, with 6 springs starting in February, and a mean date of February 28.

It is impossible to be certain about what will happen in future years, but what should be avoided is to plan ahead on the assumption that the best will happen; which is precisely the present danger if our memories are concentrated on the mid-century period of unusually early springs.

A far more reliable guide is the interpretation of the records for a far longer period, thus avoiding the optimistic sample.

Over 150 years of temperatures at Oxford are available and these tell us that the springs occurred

/5%

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5%	on or before	February	8
10%	" " "	"	12
20%	" " "	"	18
30%	" " "	"	26
40%	" " "	March	6
50%	" " "	"	14
40%	on or after	"	19
30%	on or after	"	24
20%	" " "	"	29
10%	" " "	April	3
5%	" " "	April	11

which implies that 1970 was one of the latest 10 percent. In the last 6 years we have 2 early years, 1966 and 1967

2 average years 1965 and 1968

2 late years 1969 and 1970

which is not a bad sample of the long-term expectations, but greatly different from the sample stored in our memories of the recent past.

A typical length of a 'non-grazing' season could be about 20 weeks. If we are wrong by 10-14 days in our personal estimate of the average because of the misleading warmth of the 1935-1954 period and over-emphasis on 1961 (February 8), 1966 (February 13) and 1967 (February 19) then we are underestimating the 'feeding' period by 10 per cent. If spring occurs in April, the under-estimate rises to 25 per cent. This assessment of risk does not take into account any variations in the end of the grazing seasons, which depends on autumn rainfall as well as soil temperature. If autumn weather becomes less favourable to grazing, then the picture becomes even more serious.

Increase in length of non-growing season for grass is not the only factor because the length of the growing season decreases by the same amount. Taking an extreme case:-

	Growing	Non-growing grass
Optimistic estimate	32	20
Adverse conditions	26	26 weeks

This state of affairs underlines the important need to plan correctly and with a degree of safety in regard to forage conservation. If 'winter' increases, then not only is there a requirement for more conservation, but there is less time in 'summer' to grow the food.

Dates of 'spring' across the country vary by some 5 weeks, being up to 2 weeks earlier than Oxford in the south-west and up to 3 weeks later in the extreme north-east. In a year with a late spring these differences decrease, as all areas share in the general warmth at the end of the period of northerly winds. There is also a lateness in spring connected with height above sea-level, amounting to about 2 days per 100 feet.

/If

If therefore, springs tend to be late, the areas most liable to feel the effects are the 'early' areas and the upland areas, but the main lesson to be learnt is that no one should feel complacent about fodder conservation plans and that late springs are not so unusual as we tend to believe. It is very reasonable to hope for the best, but far more sensible to allow for the possibility of something approaching the worst. Closing our eyes to facts will not eliminate the risk.

The fact is that 6 of the last 15 decades since 1815 have had later springs than 1970; this means that although the odds against it occurring in 1971 are about 20 to 1, the odds against it occurring within the next 10 years are far shorter, probably about 3 to 2 against. If the present climate trend continues, these odds will shorten to evens.

Leaving forecasting out of the calculations and depending only on past performance, if we know the true average date of spring for the locality and ignore the 'false' average of post-war warm years, a plan for grazing starting 5 days later runs a 40% risk

10 days later	a 30% risk
15 days later	a 20% risk
20 days later	a 10% risk
28 days later	a 5% risk

If on the other hand, anyone is relying on an optimistic memory, the only answer to the question "What is the average date of spring?" would be 'About a fortnight later than you think'.

/This is the substance of an article prepared for the MMB publication "The Milk Producer" August 1970./

Any comments or suggestions on this paper should be referred to the author.

Meteorological Office
Bracknell
Berkshire

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